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UCF-237DIV

[CLEAN COPY OF ALL CLAIMS

1 (Second Time Amended). A scintillator detector for high energy radiation comprising : a monocrystalline structure of cerium doped lutetium yttrium orthosilicate, $\text{Ce}_{2x}(\text{Lu}_{1-y}\text{Y}_y)_{2(1-x)}\text{SiO}_5$ where x = approximately 0.00001 to approximately 0.05 and y = approximately 0.0001 to approximately 0.9999.

[CANCEL CLAIM 2.

[CANCEL CLAIM 3.

2 (First Time Amended). The crystal of Claim 1 wherein x ranges from approximately 0.0001 to approximately 0.001 and y ranges from approximately 0.3 to approximately 0.8.

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3 (Second Time Amended). A scintillation detector assembly comprising:
a cerium doped lutetium yttrium orthosilicate mono crystal; and,
a photon detector coupled to said crystal, wherein an electrical signal is generated from the photon detector in response to said crystal being exposed to a high energy gamma ray.

[CANCEL CLAIM 6.

4 (First Time Amended). The detector assembly of Claim 3 wherein said mono crystal has the general composition of $\text{Ce}_{2x}(\text{Lu}_{1-y}\text{Y}_y)_{2(1-x)}\text{SiO}_5$ where x = approximately 0.00001 to approximately 0.05 and y = approximately 0.0001 to approximately 0.9999.

8. The detector assembly of Claim 7 where in x ranges from approximately 0.0001 to approximately 0.001 and y ranges from approximately 0.3 to approximately 0.8.

6 (First Time Amended). The detector assembly of Claim 5 wherein said coupled photon detector is selected from at least one of a photomultiplier tube, a PIN diode and an APD(avalanche photo detector) diode.